

REMARKS

This amendment responds to the office action mailed August 13, 2004. In the office action the Examiner:

- allowed claims 1-10;
- objected to claim 10 for containing informalities;
- rejected claims 11-12, 16-20, 22-23 and 25-26 under 35 U.S.C. 102(b) as anticipated by Capowski et al. (US 5,513,377);
- rejected claims 21 and 32 under 35 U.S.C. 103(a) as being unpatentable over Capowski et al. (US 5,513,377);
- rejected claim 24 under 35 U.S.C. 103(a) as being unpatentable over Capowski et al. (US 5,513,377) in view of Li (US Appl. Publication 2004/0095838); and
- noted that claims 13-15 and 27-31 would be allowed if rewritten in independent form including the limitations of all intervening claims.

After entry of this amendment, the pending claims are: claims 1-32.

Overview of Changes to Claims

Claims have been amended, without introducing new matter, as follows:

A typographic error in claim 10 has been amended;

Claims 11 and 25 have been amended to include the limitation of “Wherein the first and second channels are bi-direction communication channels” (support is found in the specification on p. 4, paragraphs 21-23 and in Fig. 2).

The limitations of base claim 11 have been incorporated into claims 13 and 14, but not the limitations of intervening claim 12; claims 13 and 14 have been written in independent form; claim 14 has also been amended to be consistent with p. 7, paragraph 34 in the specification;

The dependency of claims 16-19, 21-22, 24, 29 and 31-32 has been modified.

Typographical errors in claims 17 and 22 have been corrected; and

The limitations of base claim 25 has been incorporated into claim 27, but not the limitations of intervening claim 26; claim 27 has been written in independent form.

Information Disclosure Statement

An IDS citing Patent No. 6,587,912 (Leddige et al.) is enclosed herewith.

Claim Objections

Applicants have addressed the Examiner's objection to claim 10 by correcting the typographical error therein.

35 USC 102(b) Rejections

With respect to claim 11, the Examiner asserts that "STI receive logical macros # 28" are coupled to first and second channels. However, Fig. 1 of Capowski contains two completely separate instances of circuit 28, one in chip A and another in chip B. These two circuits 28 are not connected to each other. More importantly, no single instance of circuit 28 is coupled to both of the channels shown in Fig. 1. Thus, structurally, the Capowski system/circuit does not meet the limitations of claim 11, specifically, because no single instance of circuit 28 is a "transceiver having latency aligning circuitry coupled to the first channel and to the second channel."

To better clarify the context of claim 11, claim 11 has been amended to indicate that the first and second channels are **bi-directional** communication channels. As shown in Fig. 2, the bi-directional channel 215 connects the master device 210 with the transceiver 220B, and the bi-directional channel 275C connecting the transceiver 220B with the memory device 260G, respectively. In this way, data can be transmitted from the master device 210 to the transceiver 220B and then to the memory device 260G and vice versa.

The Applicants note that Capowski does not teach or suggest that the two self-timed interface buses 16, which the Examiner has argued achieve the limitations of the first and second channels of claim 11, are bi-directional communication channels. Indeed, the two single arrowhead lines in Fig. 1 of Capowski clearly demonstrate that both buses 16 are uni-directional communication channels in nature. The STI bus 16 in the upper half of Fig. 1 of Capowski transmits signals from chip A to chip B and the STI bus 16 in the lower half transmits signals from chip B back chip A.

Further support for concluding that the STI Buses 16 are uni-direction not bi-directional is found in Fig. 1 of Capowski. In particular, **STI Outbound** Physical Macro 24 (emphasis added) and **STI Inbound** Physical Macro 26 (emphasis added) indicate,

respectively, that communication on a respective STI Bus 16 is uni-directional. A full-text search of Capowski also indicates that there is no reference to the term “bi-directional” or its equivalent. Capowski does not disclose or teach a bi-directional STI bus.

The cited prior art does not include the limitations of a transceiver coupled to first and second channels and first and second channels bi-directional communication channels. Since Capowski does not achieve all the limitations of claim 11, it does not anticipate this claim. Removal of this ground for rejection is requested.

Dependent claims 12 and 17-20 incorporate the limitations of base claim 11. Therefore, Capowski does not anticipate these claims, either. Removal of these grounds for rejection is requested.

With this reply, claims 13 and 14 have been amended to include the limitations of claim 11 and have been written in independent form. In the present office action, the Examiner has indicated that claims 13 and 14 would be allowable if written in independent form including the limitations of the base claim and any intervening claims. While the limitations of intervening claim 12 have not been incorporated into claims 13 and 14, the Applicants believe that the amended claims 13 and 14 are novel with respect to the cited prior art and are allowable. This conclusion is consistent with the reasons for allowable subject matter cited by the Examiner in the present office action. Since claims 16, 22 and 23 dependent from claims 14 and 13, respectively, and therefore include the limitations of their respective base claims, these dependent claims are not anticipated by Capowski. Removal of these grounds for rejection is requested.

With this reply, claim 25 includes the limitation of “wherein the primary and first stick channels are bi-directional communication channels.” For the same reasons as argued above, Capowski does not, therefore, anticipate claim 25. Removal of this ground for rejection is requested.

Since claim 26 depends from claim 25, it includes the limitations of claim 26. Capowski, therefore, does not anticipate claim 26. Removal of this ground for rejection is requested.

35 USC 103 Rejections

With this reply, claim 32 depends from claim 27 and, therefore, includes the limitations of claim 27. Since claim 27 is novel and non-obvious with respect to the prior art, claim 32 is novel and non-obvious. Removal of this ground for rejection is requested.

Claim 21 recites a system including a transceiver that comprises power logic and the power logic turns off the transceiver when the transceiver does not need to transmit signals. Support for this claim can be found in Fig. 6 and its associated text on page 11, paragraph 50 of the specification. Depending upon whether memory devices (not shown in Fig. 6) that are coupled to the transceiver 220 through the stick channel 490 are being addressed or not, the power logic 485 selectively enables or disables the stick transceiver 449 to save power.

The Examiner contends that Capowski, by teaching that power required for distance impedes I/O element miniaturization (col. 2, lines 30 – 33), discloses the desirability to reduce power needs in the system. The Applicants respectfully disagree.

The text surrounding the term “power” on col. 2, lines 30 – 33 of the Capowski patent addresses multiple factors that make it difficult to reduce the **physical dimension** of an I/O element, not to reduce **power consumption** of the I/O element. Other listed factors that tend to increase the size of the I/O element include the large number of channel functions that the I/O element is required to perform and the specific channel transceiver design chosen for the I/O element. Besides this occurrence, almost all other occurrences of the term “power,” e.g., col. 1, line 50, col. 3, line 20, col. 5, line 22 and col. 7, line 16, in Capowski are related to the concept of power supply variation, which is listed in Capowski as one of the few environmental factors affecting the bit synchronization process and is completely irrelevant to power saving. Therefore, there is no motivation for one skilled in the art, according to the teaching of Capowski, to design a system that turns off any I/O element for the purpose of reducing power usage. The combination is not, therefore, *prima facie* obvious. Removal of this ground for rejection is requested.

Claim 24 recites a system including a transceiver that further comprises at least one phase locked loop (PLL) that performs clock recovery. Support for this claim can be found in Fig. 7 and its associated text on page 12, paragraph 54 of the specification. After this reply, claim 24 is dependent from claim 11 and, therefore, includes the limitation of bi-directional communication channels.

Li teaches a memory device that includes a delay lock loop (DLL) unit and a phase detect unit that work in concert to provide a phase-delayed data strobe signal in response to a delay associated with the memory device’s data signal. But Li does not disclose or suggest that the memory device comprises two bi-directional communication channels that are coupled to a transceiver having latency aligning circuitry as recited in claim 11. The

combination, therefore, does not contain all the limitations of the claim and is not *prima facie* obvious. Removal of this ground for rejection is requested.

In light of the above amendments and remarks, the Applicant respectfully requests that the Examiner reconsider this application with a view towards allowance. The Examiner is invited to call the undersigned attorney if a telephone call could help resolve any remaining items.

Respectfully submitted,

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